II. *An Account by Mr.* John Eames, *F. R. S. of a Book entituled,* A Mathematical Treatise, containing a System of Conic-Sections, with the Doctrine of Fluxions and Fluents, applied to various Subjects. *By* John Muller.

THE ingenious Author of this Work, obferving how much Time is neceffarily fpent, and Pains taken, in learning thefe valuable Parts of Mathematics, thought it would be very well worth his while to leffen. both, which he hopes he has done confiderably, in the following Treatife. He has divided it into three Parts, contained in fo many Books.

In the firft of thefe, he confiders the Properties of the three Sections of a Cone, as well in, as out of the Cone. And to make this Part of the Work of more Service to the Reader, Mr. *Muller* has not only fe-lected the moft confiderable Properties of thefe Curves, that are to be met with in other Writers, both Ancient and Modern; but has added feveral new ones, which, as he informs us, are inferted in their proper Places. And that fuch Gentlemen as are defirous to read Sir *Ifaac Newton's Principia*, but are at a lofs for want of a fufficient Acquaintance with Conic-Sections, may be the more obliged, he has taken parti-cular Care to demonftrate fuch Properties as Sir *Ifaac* prefuppofes his Reader to be acquainted withal. Ac-cordingly, he has prefix'd a Table of fuch Propofitions, informing him as well where they are to be met with

in this Book, as in Sir *Iſaac Newton*'s *Principia Ma-thematica.*

The Proofs made uſe of in his Demonſtrations, are ſometimes Algebraical, at other times Geometrical, according as he finds the one to be plainer and ſhorter than the other.

B o o k II.

The ſecond Book treats of the direct Method of Fluxions. And here he hopes the firſt Principles of this Method are laid down, not only in a new, but very plain and conciſe manner. He proceeds to ſhew the Uſe of Fluxions in the Solution of the common Problems of finding the *Maxima* and *Minima* of Quantities, the *Radii* of the Evolution of Curves, and the *Radii* of Refraction and Reflection. Under the firſt of theſe Heads he tells us, particular Care has been taken to diſtinguiſh the *Maximums* from the *Mini-mums*, a thing which has not been taken Notice of ſo much as it ought to have been. And whereas ſome Mathematicians, having made uſe of what they call in-finitely ſmall Quantities, are forced to reject ſome-thing out of the Equation, for finding the Fluxion of a Rectangle, whoſe Sides are varying Quantities, Mr. *Muller* uſes only finite Quantities; and finds the Flu-xion of ſuch a Rectangle after a new manner, without rejecting any Quantity for its Smallneſs. He does the ſame in finding the Fluxion of a Power. And to avoid the Uſe of infinitely ſmall Quantities, introduces a new Principle, *viz.* That a curve Line may be con-ſider'd as generated by the Motion of a Point carried along by two Forces or Motions, one in a Direction always parallel to the Abſciſs, and the other in a Di-rection

rection always parallel to the Ordinate. Hence he infers, that the Fluxion of the Ordinate is to the Fluxion of the Abfcifs, as the Ordinate is to the Subtangent of the Curve.

Having likewife proved from the firft Suppofition, that if the defcribing Point, when arrived at any Place given, fhould continue to move onwards, with the Velocity it has there, it would proceed in a Right Line, which would touch the Curve in that Point; he concludes that the Direction of the Force in that Place is in the Tangent to the Curve : Confequently, the three Directions being known in each Place, the Proportion between the Velocities of the urging Forces will be likewife known. So that the Nature of the Curve being given, the Law obferv'd by thefe Velocities may be found; and if the Law of the Velocities be given, the Nature of the Curve may likewife be given.

B o o k III.

In the third and laft Book, we have the inverfe Method of Fluxions, with its Application to the fevera! Problems folvable by it; fuch as the fuperficial and folid Contents of Curvilineal Figures, the Rectification of Curve Lines, Centres of Gravity, Ofcillation and Percuffion. Here alfo Mr. *Cotes*'s Tables of Fluents are explain'd and illuftrated by Examples.

He finifhes this Book with a great Variety of Problems, that are of a Phyfico-Mathematical Nature, feveral of which are new, and propofed to him by Mr. *Belidor*. Some, indeed, are not fo, having been folved by Meffieurs *Varignon* and *Parent;* but then he has folved them after a different, and, as he hopes, a more agreeable Manner, the Conftruction being more fimple, and the Procefs much fhorter.

M   III. *Ob-*